



# UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6  
HOUSTON BRANCH  
10625 FALLSTONE RD.  
HOUSTON, TEXAS 77099

September 18, 2012

## MEMORANDUM

**SUBJECT:** Contract Laboratory Program Data Review

*Raymond Flores*  
**FROM:** Raymond Flores, Alternate ESAT Regional Project Officer  
Environmental Services Branch (6MD-HL)

**TO:** Brenda Cook, Superfund Project Manager (6SF-TR)  
Gary Moore, On-Scene Coordinator (6SF-PR)

**Site:** DELTA SHIPYARD

**Case#:** 42764

**SDG#:** MF6AF4

The EPA Region 6 Environmental Services Branch ESAT data review team has completed a review of the submitted Contract Laboratory Program (CLP) data package for the referenced site. The samples analyzed and reviewed are detailed in the attached Regional data review report.

The data package is acceptable for regional use. Problems, if any, are listed in the report narrative. If you have any questions regarding the data review report, please contact me at (281) 983-2139.



9522632

# **ENVIRONMENTAL SERVICES ASSISTANCE TEAM**

ESAT Region 6  
10625 Fallstone Road  
Houston, TX 77099

**Alion Science and Technology**

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## **MEMORANDUM**

DATE: September 18, 2012

TO: Marvely Humphrey, ESAT PO, Region 6 EPA

FROM: Sonya Meekins <sup>JMM</sup>, Data Reviewer, ESAT

THRU: Dominic G. Jarecki, ESAT Program Manager, ESAT <sup>DGJ</sup>

SUBJECT: CLP Data Review

Contract No.: EP-W-06-030  
TO No.: 030  
Task/Sub-Task: 2-12  
ESAT Doc. No.: B030-212-0088  
TDF No.: 6-12-502B  
ESAT File No.: I-0576

Attached is the data review summary for Case # 42764

SDG # MF6AF4

Site Delta Shipyard

### **COMMENTS:**

#### I. LEVEL OF DATA REVIEW

Modified CADRE review was performed for this data package.

#### II. CONTRACTUAL ASSESSMENT OF THE DATA PACKAGE

The CCS found a few contractually noncompliant items that did not affect technical usability of the results.

#### III. TECHNICAL USABILITY ASSESSMENT OF THE DATA PACKAGE

Some results were qualified for technical problems, and the significant problem is addressed below.

The antimony and cadmium matrix spike recoveries were outside the QC limits.

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**  
**REGION 6**  
**HOUSTON BRANCH**  
**10625 FALLSTONE ROAD**  
**HOUSTON, TEXAS 77099**

**INORGANIC REGIONAL DATA ASSESSMENT**

CASE NO.	42764	SITE	Delta Shipyard
LABORATORY	CHEM	NO. OF SAMPLES	15
CONTRACT#	EP-W-09-038	MATRIX	1 Water/14 Soil
SDG#	MF6AF4	REVIEWER (IF NOT ESB)	ESAT
SOW#	ISM01.3	REVIEWER'S NAME	Sonya Meekins
SF#	303DD2GC	COMPLETION DATE	September 18, 2012

SAMPLE NO.	MF6AC2	MF6AF6	MF6AG4	MF6AG9	
	MF6AC3	MF6AF7	MF6AG5	MF6AN3	
	MF6AC4	MF6AG2	MF6AG6	MF6AN4	
	MF6AF4	MF6AG3	MF6AG7		

**DATA ASSESSMENT SUMMARY**

	ICP	HG
1. HOLDING TIMES	O	O
2. CALIBRATIONS	O	O
3. BLANKS	O	O
4. MATRIX SPIKES	M	O
5. DUPLICATE ANALYSIS	O	O
6. ICP QC	O	
7. LCS	O	
8. SAMPLE VERIFICATION	O	O
9. OTHER QC	N/A	N/A
10. OVERALL ASSESSMENT	M	O

O = Data had no problems.

M = Data qualified due to major or minor problems.

Z = Data unacceptable.

NA = Not applicable.

**ACTION ITEMS:**

**AREAS OF CONCERN:** The antimony matrix spike recovery was below the QC limit. The cadmium, cobalt, and nickel matrix spike recoveries were above the QC limit.

**COMMENTS/CLARIFICATIONS  
REGION 6 CLP QA REVIEW**

**CASE 42764 SDG MF6AF4 SITE Delta Shipyard LAB CHEM**

**COMMENTS:** This SDG consisted of 1 water and 14 soil samples for total metals (by ICP-AES) and mercury analyses following CLP SOW ISM01.3. The sampler designated soil sample MF6AF4 for laboratory QC analyses and water sample MF6AG9 as a rinsate.

The SOW requires that the soil sample results be adjusted for moisture content and dilution, which raised the adjusted QLs above the CRQLs specified in the SOW. The adjusted CRQLs were reported by the laboratory and are referred to as SQLs in this report.

The analytes of concern with the CRQLs, which are in parentheses, as the desired detection limits were arsenic (1 mg/kg) and barium (20 mg/kg). All soil samples contained both analytes of concern at concentrations over the desired detection limits. The laboratory diluted (up to 25X) and reanalyzed all soil samples except samples MF6AF6 and MF6AF7 because of high concentrations of barium and/or iron. Samples MF6AC3 and MF6AC4 had very low %solids (27% and 20.2%, respectively).

Modified CADRE review was performed for this package as requested by the Region. For this review option, the CCS and CADRE primarily determine the laboratory contractual compliance and the technical usability of the sample results, respectively. The reviewer performs supplemental hardcopy forms checking and applies Region 6 guidelines, where necessary, to account for known limitations of the electronic review process. Therefore, the reviewer's final assessments may deviate from those found in the CADRE report. The CADRE narrative for the SDG is attached to this report as an addendum for additional information.

**DATA ASSESSMENT:** The QC problems affecting data usability are addressed below.

- Because of laboratory blank readings, the cadmium results <SQLs for samples MF6AF4, MF6AF6, and MF6AF7 and the aluminum result <CRQL for sample MF6AG9 should be considered undetected and were flagged "U" at the SQLs/CRQL on the DST.
- Rinsate sample MF6AG9 contained arsenic, beryllium, and mercury at concentrations below the CRQLs. The reviewer was unable to assess the effect of equipment contamination because information associating the samples with the rinsate was unavailable.
- The reviewer qualified the antimony soil sample results as estimated and biased low because the antimony pre-digestion matrix spike recovery was below the 75% QC limit and the post-digestion matrix spike analysis indicated a low bias effect.

**INORGANIC QA REVIEW  
CONTINUATION PAGE**

**CASE 42764 SDG MF6AF4 SITE Delta Shipyard LAB CHEM**

- The reviewer qualified the detected cadmium results as estimated and biased high because the cadmium pre-digestion matrix spike recovery was above the 125% QC limit and the post-digestion matrix spike analysis indicated a high bias effect.
- The reviewer qualified the detected cobalt and nickel results as estimated because the associated pre-digestion matrix spike recoveries were above the 125% QC limit and the post-digestion matrix spike analyses did not indicate a bias effect.
- The reviewer "W"-flagged all the results for samples MF6AC3 and MF6AC4 because of extremely low %solids (27% and 20.2%, respectively).

**OVERALL ASSESSMENT:** Some results were qualified for all soil samples because of problems with matrix spike recoveries. ESAT's final data qualifiers in the DST indicate the technical usability of all reported sample results. An Evidence Audit was conducted for the CSF, and the audit results were reported on the Evidence Inventory Checklist. The DST included in this report is the final version.

The laboratory responded to the CCS, performed the necessary reanalysis, and submitted the required forms and raw data. These pages were placed at the beginning of the data package. Resubmitted pages 16, 17, 101, and 116 should be used to replace the corresponding pages in the CSF package and the remaining pages should be added to the CSF package in the appropriate places.

## INORGANIC ACRONYMS

<b>CADRE</b>	Computer-Aided Data Review and Evaluation
<b>CCB</b>	Continuing Calibration Blank
<b>CCS</b>	Contract Compliance Screening
<b>CCV</b>	Continuing Calibration Verification
<b>CN</b>	Cyanide
<b>CRQL</b>	Contract Required Quantitation Limit
<b>CSF</b>	Complete SDG File
<b>DST</b>	Data Summary Table
<b>HG</b>	Mercury
<b>ICB</b>	Initial Calibration Blank
<b>ICP</b>	Inductively Coupled Plasma
<b>ICP-AES</b>	Inductively Coupled Plasma-Atomic Emission Spectroscopy
<b>ICP-MS</b>	Inductively Coupled Plasma-Mass Spectrometry
<b>ICS</b>	Interference Check Sample
<b>ICV</b>	Initial Calibration Verification
<b>IS</b>	Internal Standard
<b>LCS</b>	Laboratory Control Sample
<b>MDL</b>	Method Detection Limit
<b>NFG</b>	National Functional Guidelines
<b>PE</b>	Performance Evaluation
<b>%D</b>	Percent Difference
<b>%R</b>	Percent Recovery
<b>%RI</b>	Percent Relative Intensity
<b>%RSD</b>	Percent Relative Standard Deviation
<b>QA</b>	Quality Assurance
<b>QC</b>	Quality Control
<b>QL</b>	Quantitation Limit
<b>RPD</b>	Relative Percent Difference
<b>RSCC</b>	Regional Sample Control Center
<b>SDG</b>	Sample Delivery Group
<b>SMO</b>	Sample Management Office
<b>SOW</b>	Statement of Work
<b>SQL</b>	Sample Quantitation Limit
<b>TAL</b>	Target Analyte List

## HEADER DEFINITIONS FOR INORGANIC EXCEL DST

CASE: Case Number  
SDG: SDG Number  
EPASAMP: EPA Sample Number  
LABID: Laboratory File/Sample ID  
MATRIX: Sample Matrix  
QCCOD: Sample QC Code  
SMPQUAL: Sample Qualifier  
ANDATE: Sample Analysis Date  
ANTIME: Sample Analysis Time  
CASNUM: Compound CAS Number  
ANALYTE: Compound Name  
CONC: Compound Concentration  
VALDQAL: Region 6 Inorganic Data Validation Qualifier (see  
Inorganic Data Qualifier Definitions on the next page)  
UNITS: Concentration Units  
ADJCRQL: Adjusted Contract Required Quantitation Limit Value  
SMPDATE: Sampling Date  
PRPDATE: Sample Preparation Date  
LRDATE: Laboratory Receipt Date  
LEVEL: Sample Level  
PERSOLD: Sample Percent Solids  
SMPWTVL: Sample Weight (Soil Samples)/Initial Sample Volume (Water  
Samples)  
FINLVOL: Final Sample Volume  
METHOD: Method of Analysis  
STATLOC: Station Location

**Disclaimer:** ESAT verified the accuracy of the information reported in the Excel DST only for the following data fields: CASE, SDG, EPASAMP, MATRIX, ANALYTE, CONC, UNITS, ADJCRQL, VALDQAL, and PERSOLD. The data qualifiers in the VALDQAL column indicate the technical usability of the reported results.

## **INORGANIC DATA QUALIFIER DEFINITIONS**

The following definitions provide brief explanations of the ESAT-Region 6 qualifiers assigned to results in the Data Summary Table.

- U** Not detected at reported quantitation limit.
- L** Reported concentration is between the MDL and the CRQL.
- J** Result is estimated because of outlying quality control parameters such as matrix spike, serial dilution, etc., or the result is below the CRQL.
- R** Result is unusable.
- F** A possibility of a false negative exists.
- UC** Reported concentration should be used as a raised quantitation limit because of blank effects and/or laboratory or field contamination.
- +** High biased. Actual concentration may be lower than the concentration reported.
- Low biased. Actual concentration may be higher than the concentration reported.
- W** The result should be used with caution. The result was reported on a dry weight basis although the sample did not conform to the EPA Office of Water definition of a soil sample because of its high water content (>70% moisture).







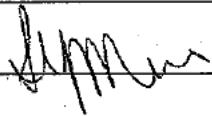




42764	MF6AF4	MF6AN3	D3750-16 S	Field_Sample 08/21/2012 05:32:59	7440020	Nickel	22.9	J	mg/kg	4.4	08/10/2012 08/15/2012 08/11/2012	Low	67.6	1.36	100	P	DSW-01-01-513
42764	MF6AF4	MF6AN3	D3750-16 S	Field_Sample 08/21/2012 05:32:59	7440097	Potassium	1120		mg/kg	544	08/10/2012 08/15/2012 08/11/2012	Low	67.6	1.36	100	P	DSW-01-01-513
42764	MF6AF4	MF6AN3	D3750-16 S	Field_Sample 08/21/2012 05:32:59	7782492	Selenium	3.1	LJ	mg/kg	3.8	08/10/2012 08/15/2012 08/11/2012	Low	67.6	1.36	100	P	DSW-01-01-513
42764	MF6AF4	MF6AN3	D3750-16 S	Field_Sample 08/21/2012 05:32:59	7440224	Silver	2.2		mg/kg	1.1	08/10/2012 08/15/2012 08/11/2012	Low	67.6	1.36	100	P	DSW-01-01-513
42764	MF6AF4	MF6AN3	D3750-16 S	Field_Sample 08/21/2012 05:32:59	7440235	Sodium	198	LJ	mg/kg	544	08/10/2012 08/15/2012 08/11/2012	Low	67.6	1.36	100	P	DSW-01-01-513
42764	MF6AF4	MF6AN3	D3750-16 S	Field_Sample 08/21/2012 05:32:59	7440280	Thallium	2.7	U	mg/kg	2.7	08/10/2012 08/15/2012 08/11/2012	Low	67.6	1.36	100	P	DSW-01-01-513
42764	MF6AF4	MF6AN3	D3750-16 S	Field_Sample 08/21/2012 05:32:59	7440622	Vanadium	18.8		mg/kg	5.4	08/10/2012 08/15/2012 08/11/2012	Low	67.6	1.36	100	P	DSW-01-01-513
42764	MF6AF4	MF6AN3	D3750-16 S	Field_Sample 08/21/2012 05:32:59	7440666	Zinc	750		mg/kg	6.5	08/10/2012 08/15/2012 08/11/2012	Low	67.6	1.36	100	P	DSW-01-01-513
42764	MF6AF4	MF6AN4	D3750-17 S	Field_Sample 08/21/2012 05:46:17	7429905	Aluminum	6500		mg/kg	21.5	08/10/2012 08/15/2012 08/11/2012	Low	67.3	1.38	100	P	DSW-01-01-523
42764	MF6AF4	MF6AN4	D3750-17 S	Field_Sample 08/21/2012 05:46:17	7440360	Antimony	5.1	LJ	mg/kg	6.5	08/10/2012 08/15/2012 08/11/2012	Low	67.3	1.38	100	P	DSW-01-01-523
42764	MF6AF4	MF6AN4	D3750-17 S	Field_Sample 08/21/2012 05:46:17	7440382	Arsenic	23.9		mg/kg	1.1	08/10/2012 08/15/2012 08/11/2012	Low	67.3	1.38	100	P	DSW-01-01-523
42764	MF6AF4	MF6AN4	D3750-17 S	Field_Sample 08/21/2012 05:55:06	7440393	Barium	13300		mg/kg	538	08/10/2012 08/15/2012 08/11/2012	Low	67.3	1.38	100	P	DSW-01-01-523
42764	MF6AF4	MF6AN4	D3750-17 S	Field_Sample 08/21/2012 05:46:17	7440417	Beryllium	0.62		mg/kg	0.54	08/10/2012 08/15/2012 08/11/2012	Low	67.3	1.38	100	P	DSW-01-01-523
42764	MF6AF4	MF6AN4	D3750-17 S	Field_Sample 08/21/2012 05:46:17	7440439	Cadmium	3.7	J+	mg/kg	0.54	08/10/2012 08/15/2012 08/11/2012	Low	67.3	1.38	100	P	DSW-01-01-523
42764	MF6AF4	MF6AN4	D3750-17 S	Field_Sample 08/21/2012 05:46:17	7440702	Calcium	10100		mg/kg	538	08/10/2012 08/15/2012 08/11/2012	Low	67.3	1.38	100	P	DSW-01-01-523
42764	MF6AF4	MF6AN4	D3750-17 S	Field_Sample 08/21/2012 05:46:17	7440473	Chromium	86.5		mg/kg	1.1	08/10/2012 08/15/2012 08/11/2012	Low	67.3	1.38	100	P	DSW-01-01-523
42764	MF6AF4	MF6AN4	D3750-17 S	Field_Sample 08/21/2012 05:46:17	7440484	Cobalt	3.0	LJ	mg/kg	5.4	08/10/2012 08/15/2012 08/11/2012	Low	67.3	1.38	100	P	DSW-01-01-523
42764	MF6AF4	MF6AN4	D3750-17 S	Field_Sample 08/21/2012 05:46:17	7440508	Copper	85.0		mg/kg	2.7	08/10/2012 08/15/2012 08/11/2012	Low	67.3	1.38	100	P	DSW-01-01-523
42764	MF6AF4	MF6AN4	D3750-17 S	Field_Sample 08/21/2012 05:46:17	7439896	Iron	19400		mg/kg	10.8	08/10/2012 08/15/2012 08/11/2012	Low	67.3	1.38	100	P	DSW-01-01-523
42764	MF6AF4	MF6AN4	D3750-17 S	Field_Sample 08/21/2012 05:46:17	7439921	Lead	376		mg/kg	1.1	08/10/2012 08/15/2012 08/11/2012	Low	67.3	1.38	100	P	DSW-01-01-523
42764	MF6AF4	MF6AN4	D3750-17 S	Field_Sample 08/21/2012 05:46:17	7439954	Magnesium	2610		mg/kg	538	08/10/2012 08/15/2012 08/11/2012	Low	67.3	1.38	100	P	DSW-01-01-523
42764	MF6AF4	MF6AN4	D3750-17 S	Field_Sample 08/21/2012 05:46:17	7439965	Manganese	539		mg/kg	1.6	08/10/2012 08/15/2012 08/11/2012	Low	67.3	1.38	100	P	DSW-01-01-523
42764	MF6AF4	MF6AN4	D3750-17 S	Field_Sample 08/17/2012 10:21:00	7439976	Mercury	0.55		mg/kg	0.14	08/10/2012 08/15/2012 08/11/2012	Low	67.3	.55	100	CV	DSW-01-01-523
42764	MF6AF4	MF6AN4	D3750-17 S	Field_Sample 08/21/2012 05:46:17	7440020	Nickel	22.2	J	mg/kg	4.3	08/10/2012 08/15/2012 08/11/2012	Low	67.3	1.38	100	P	DSW-01-01-523
42764	MF6AF4	MF6AN4	D3750-17 S	Field_Sample 08/21/2012 05:46:17	7440097	Potassium	1320		mg/kg	538	08/10/2012 08/15/2012 08/11/2012	Low	67.3	1.38	100	P	DSW-01-01-523
42764	MF6AF4	MF6AN4	D3750-17 S	Field_Sample 08/21/2012 05:46:17	7782492	Selenium	2.6	LJ	mg/kg	3.8	08/10/2012 08/15/2012 08/11/2012	Low	67.3	1.38	100	P	DSW-01-01-523
42764	MF6AF4	MF6AN4	D3750-17 S	Field_Sample 08/21/2012 05:46:17	7440224	Silver	1.8		mg/kg	1.1	08/10/2012 08/15/2012 08/11/2012	Low	67.3	1.38	100	P	DSW-01-01-523
42764	MF6AF4	MF6AN4	D3750-17 S	Field_Sample 08/21/2012 05:46:17	7440235	Sodium	176	LJ	mg/kg	538	08/10/2012 08/15/2012 08/11/2012	Low	67.3	1.38	100	P	DSW-01-01-523
42764	MF6AF4	MF6AN4	D3750-17 S	Field_Sample 08/21/2012 05:46:17	7440280	Thallium	2.7	U	mg/kg	2.7	08/10/2012 08/15/2012 08/11/2012	Low	67.3	1.38	100	P	DSW-01-01-523
42764	MF6AF4	MF6AN4	D3750-17 S	Field_Sample 08/21/2012 05:46:17	7440622	Vanadium	19.6		mg/kg	5.4	08/10/2012 08/15/2012 08/11/2012	Low	67.3	1.38	100	P	DSW-01-01-523
42764	MF6AF4	MF6AN4	D3750-17 S	Field_Sample 08/21/2012 05:46:17	7440666	Zinc	660		mg/kg	6.5	08/10/2012 08/15/2012 08/11/2012	Low	67.3	1.38	100	P	DSW-01-01-523

# INORGANIC/ORGANIC COMPLETE SDG FILE (CSF) INVENTORY CHECKLIST

Case No.	42764	SDG No.	MF6AF4	SDG Nos. To Follow	Mod. Ref. No.	Date Rec	09/04/12	
EPA Lab ID:	CHEM		<b>ORIGINALS</b>			<b>YES</b>	<b>NO</b>	<b>N/A</b>
Lab location:	Mountainside, NJ		<b>CUSTODY SEALS</b>					
Region:	6	Audit No.:	42764/MF6AF4		1. Present on package?	X		
Resubmitted CSF?	Yes	No	X	2. Intact upon receipt?	X			
Box No(s):	1		<b>FORM DC-2</b>					
COMMENTS:			3. Numbering scheme accurate?	X				
			4. Are enclosed documents listed?	X				
			5. Are listed documents enclosed?	X				
			<b>FORM DC-1</b>					
			6. Present?	X				
			7. Complete?	X				
			8. Accurate?	X				
			<b>TRAFFIC REPORT/CHAIN-OF-CUSTODY RECORD(s)</b>					
			9. Signed?	X				
			10. Dated?	X				
			<b>AIRBILLS/AIRBILL STICKER</b>					
			11. Present?	X				
			12. Signed?	X				
			13. Dated?	X				
			<b>SAMPLE TAGS</b>					
			14. Does DC-1 list tags as being included?	X				
			15. Present?	X				
			<b>OTHER DOCUMENTS</b>					
			16. Complete?	X				
			17. Legible?	X				
			18. Original?			X		
			18a. If "NO", does the copy indicate where original documents are located?	X				
Over for additional comments.								

Audited   
 Audited \_\_\_\_\_

Sonya Meekins/ESAT Data Reviewer

Date 09/12/12

Date \_\_\_\_\_

Signature \_\_\_\_\_

Printed Name/Title

DC-2







# **ADDENDUM**

# **CADRE NARRATIVE**

**National Functional Guidelines Report #03**

Lab CHEM(Chemtech Consulting Group) SDG MF6AF4 Case 42764 Contract EPW09038 Region 6 DDTID 159030 SOW ISM01.3

**Data Review Reports****Blanks**

<b>Blanks</b>	<b>Hg</b>
NCB05	The following samples have no detected analytes. The associated ICB analyte results are less than or equal to -MDLs but greater than or equal to -CRQLs. Use professional judgment to qualify detected and nondetected analytes.
	PBS01, MF6AG7
Mercury PBS01 , MF6AG7	
<b>Blanks</b>	<b>Hg</b>
NCB06	The following samples have no detected analytes. The associated CCB analyte results are less than or equal to -MDLs but greater than or equal to -CRQLs. Use professional judgment to qualify detected and nondetected analytes.
	PBS01, MF6AG7
Mercury PBS01 , MF6AG7	
<b>Blanks</b>	<b>Hg</b>
ND15	The following samples have analyte results greater than or equal to MDLs. The associated ICB analyte results are less than or equal to -MDLs but greater than or equal to -CRQLs. Use professional judgment to qualify detected and nondetected analytes.
	MF6AF4, MF6AF4D, MF6AF4S, MF6AF6, MF6AF7, MF6AG2, MF6AG3, MF6AG4, MF6AG5, MF6AG6, MF6AC2, MF6AC3, MF6AC4, MF6AN3, MF6AN4
Mercury MF6AF4 , MF6AF4D , MF6AF4S , MF6AF6 , MF6AF7 , MF6AG2 , MF6AG3 , MF6AG4 , MF6AG5 , MF6AG6 , MF6AC2 , MF6AC3 , MF6AC4 , MF6AN3 , MF6AN4	
<b>Blanks</b>	<b>Hg</b>
ND16	The following samples have analyte results greater than or equal to MDLs. The associated CCB analyte results are less than or equal to -MDLs but greater than or equal to -CRQLs. Use professional judgment to qualify detected and nondetected analytes.
	MF6AF4, MF6AF4D, MF6AF4S, MF6AF6, MF6AF7, MF6AG2, MF6AG3, MF6AG4, MF6AG5, MF6AG6, MF6AC2, MF6AC3, MF6AC4, MF6AN3, MF6AN4
Mercury MF6AF4 , MF6AF4D , MF6AF4S , MF6AF6 , MF6AF7 , MF6AG2 , MF6AG3 , MF6AG4 , MF6AG5 , MF6AG6 , MF6AC2 , MF6AC3 , MF6AC4 , MF6AN3 , MF6AN4	

**National Functional Guidelines Report #03**

Lab CHEM(Chemtech Consulting Group) SDG MF6AF4 Case 42764 Contract EPW09038 Region 6 DDTID 159030 SOW ISM01.3

**Data Review Reports**

Blanks

<b>Blanks</b>	<b>ICP_AES</b>
NCB02	The following samples have analyte results greater than or equal to MDLs but equal to CRQLs. The associated CCB analyte results are greater than or equal to MDLs but less than or equal to CRQLs. Detected analytes are qualified U. Nondetected analytes are not qualified. Sample results are reported at CRQLs.
	MF6AG4
	Cobalt MF6AG4
<b>Blanks</b>	<b>ICP_AES</b>
NCB05	The following samples have no detected analytes. The associated ICB analyte results are less than or equal to -MDLs but greater than or equal to -CRQLs. Use professional judgment to qualify detected and nondetected analytes.
	MF6AF4L
	Antimony MF6AF4L
<b>Blanks</b>	<b>ICP_AES</b>
NCB06	The following samples have no detected analytes. The associated CCB analyte results are less than or equal to -MDLs but greater than or equal to -CRQLs. Use professional judgment to qualify detected and nondetected analytes.
	PBW01, MF6AG9, MF6AF4L
	Vanadium PBW01, MF6AG9
	Sodium PBW01, MF6AG9
	Chromium PBW01, MF6AG9
	Barium PBW01, MF6AG9
	Zinc PBW01, MF6AG9
	Antimony MF6AF4L
	Copper PBW01, MF6AG9
	Magnesium PBW01, MF6AG9
	Manganese PBW01, MF6AG9
	Iron PBW01, MF6AG9
<b>Blanks</b>	<b>ICP_AES</b>
ND03	The following samples have analyte results greater than or equal to MDLs but less than CRQLs. The associated ICB analyte results are greater than or equal to MDLs but less than or equal to CRQLs. Detected analytes are qualified U. Nondetected analytes are not qualified. Sample results are elevated to CRQLs.
	MF6AG9, PB65101BL
	Arsenic MF6AG9
	Barium PB65101BL
<b>Blanks</b>	<b>ICP_AES</b>

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***Data Review Reports*****Blanks**

<b>Blanks</b>	
ND04	The following samples have analyte results greater than or equal to MDLs but less than CRQLs. The associated CCB analyte results are greater than or equal to MDLs but less than or equal to CRQLs. Detected analytes are qualified U. Nondetected analytes are not qualified. Sample results are elevated at CRQLs.
	MF6AG9, MF6AF4L, MF6AF4D, MF6AG3, MF6AG7, MF6AN3, MF6AN4, PB65101BL, PBW01, MF6AF4, MF6AF6, MF6AF7, MF6AG6
Arsenic	MF6AG9
Cobalt	MF6AF4L, MF6AF4D, MF6AG3, MF6AG7, MF6AN3, MF6AN4
Barium	PB65101BL
Beryllium	MF6AG9
Aluminum	PBW01, MF6AG9, PB65101BL
Potassium	PBW01, MF6AF4L
Cadmium	MF6AF4, MF6AF4D, MF6AF6, MF6AF7, MF6AG6
<b>Blanks</b>	
ND05	The following samples have analyte results greater than CRQLs. The associated ICB analyte results are greater than or equal to MDLs but less than or equal to CRQLs. Use professional judgment to qualified detected and nondetected analytes.
	LCS, MF6AF4A, MF6AF4, MF6AF4L, MF6AF4D, MF6AF4S, MF6AF6, MF6AF7, MF6AG2, MF6AG3, MF6AG4, MF6AG5, MF6AG6, MF6AG7, MF6AC2, MF6AC3, MF6AC4, MF6AN3, MF6AN4
Arsenic	LCS
Cobalt	MF6AF4A
Barium	LCS, MF6AF4, MF6AF4L, MF6AF4D, MF6AF4S, MF6AF6, MF6AF7, MF6AG2, MF6AG3, MF6AG4, MF6AG5, MF6AG6, MF6AG7, MF6AC2, MF6AC3, MF6AC4, MF6AN3, MF6AN4
Nickel	LCS, MF6AF4, MF6AF4L, MF6AF4D, MF6AF4S, MF6AF6, MF6AF7, MF6AG2, MF6AG3, MF6AG4, MF6AG5, MF6AG6, MF6AG7, MF6AC2, MF6AC3, MF6AC4, MF6AN3, MF6AN4
Antimony	MF6AF4A
Cadmium	MF6AF4A
Iron	LCS
<b>Blanks</b>	
ND06	The following samples have analyte results greater than CRQLs. The associated CCB analyte results are greater than or equal to MDLs but less than or equal to CRQLs. Use professional judgment to qualified detected and nondetected analytes.
	LCS, MF6AF4, MF6AF4L, MF6AF4D, MF6AF6, MF6AF7, MF6AG2, MF6AG3, MF6AG4, MF6AG5, MF6AG6, MF6AG7, MF6AC2, MF6AC3, MF6AC4, MF6AN3, MF6AN4, MF6AF4A
Calcium	LCS, MF6AF4, MF6AF4L, MF6AF4D, MF6AF6, MF6AF7, MF6AG2, MF6AG3, MF6AG4, MF6AG5, MF6AG6, MF6AG7, MF6AC2, MF6AC3, MF6AC4, MF6AN3, MF6AN4
Nickel	LCS, MF6AF4, MF6AF4L, MF6AF4D, MF6AF4S, MF6AF6, MF6AF7, MF6AG2, MF6AG3, MF6AG4, MF6AG5, MF6AG6, MF6AG7, MF6AC2, MF6AC3, MF6AC4, MF6AN3, MF6AN4, MF6AF4A
Potassium	LCS

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Blanks

Blanks	ICP_AES
	Copper LCS , MF6AF4 , MF6AF4L , MF6AF4D , MF6AF4S , MF6AF6 , MF6AF7 , MF6AG2 , MF6AG3 , MF6AG4 , MF6AG5 , MF6AG6 , MF6AG7 , MF6AC2 , MF6AC3 , MF6AC4 , MF6AN3 , MF6AN4
	Barium LCS , MF6AF4 , MF6AF4L , MF6AF4D , MF6AF4S , MF6AF6 , MF6AF7 , MF6AG2 , MF6AG3 , MF6AG4 , MF6AG5 , MF6AG6 , MF6AG7 , MF6AC2 , MF6AC3 , MF6AC4 , MF6AN3 , MF6AN4
	Cobalt LCS , MF6AF4 , MF6AF4L , MF6AF4D , MF6AF4S , MF6AF6 , MF6AF7 , MF6AG2 , MF6AG3 , MF6AG4 , MF6AG5 , MF6AG6 , MF6AC2 , MF6AC3 , MF6AC4 , MF6AF4A
	Aluminum LCS , MF6AF4 , MF6AF4L , MF6AF4D , MF6AF4S , MF6AF6 , MF6AF7 , MF6AG2 , MF6AG3 , MF6AG4 , MF6AG5 , MF6AG6 , MF6AG7 , MF6AC2 , MF6AC3 , MF6AC4 , MF6AN3 , MF6AN4
	Beryllium LCS
	Antimony MF6AF4A
	Cadmium LCS , MF6AF4S , MF6AG2 , MF6AG3 , MF6AG4 , MF6AG5 , MF6AG7 , MF6AC2 , MF6AC3 , MF6AC4 , MF6AN3 , MF6AN4 , MF6AF4A
	Magnesium LCS , MF6AF4 , MF6AF4L , MF6AF4D , MF6AF6 , MF6AF7 , MF6AG2 , MF6AG3 , MF6AG4 , MF6AG5 , MF6AG6 , MF6AG7 , MF6AC2 , MF6AC3 , MF6AC4 , MF6AN3 , MF6AN4
	Iron LCS , MF6AF4 , MF6AF4L , MF6AF4D , MF6AF6 , MF6AF7 , MF6AG2 , MF6AG3 , MF6AG4 , MF6AG5 , MF6AG6 , MF6AG7 , MF6AC2 , MF6AC3 , MF6AC4 , MF6AN3 , MF6AN4
	Manganese LCS , MF6AF4 , MF6AF4L , MF6AF4D , MF6AF4S , MF6AF6 , MF6AF7 , MF6AG2 , MF6AG3 , MF6AG4 , MF6AG5 , MF6AG6 , MF6AG7 , MF6AC2 , MF6AC3 , MF6AC4 , MF6AN3 , MF6AN4
Blanks	ICP_AES
ND15	The following samples have analyte results greater than or equal to MDLs. The associated ICB analyte results are less than or equal to -MDLs but greater than or equal to -CRQLs. Use professional judgment to qualify detected and nondetected analytes.
	LCS , MF6AF4 , MF6AF4D , MF6AF4S , MF6AF6 , MF6AF7 , MF6AG2 , MF6AG3 , MF6AG4 , MF6AG5 , MF6AG6 , MF6AG7 , MF6AC2 , MF6AC3 , MF6AC4 , MF6AN3 , MF6AN4 , MF6AF4L
	Antimony LCS , MF6AF4 , MF6AF4D , MF6AF4S , MF6AF6 , MF6AF7 , MF6AG2 , MF6AG3 , MF6AG4 , MF6AG5 , MF6AG6 , MF6AG7 , MF6AC2 , MF6AC3 , MF6AC4 , MF6AN3 , MF6AN4
	Potassium LCS , MF6AF4 , MF6AF4L , MF6AF4D , MF6AF6 , MF6AF7 , MF6AG2 , MF6AG3 , MF6AG4 , MF6AG5 , MF6AG6 , MF6AG7 , MF6AC2 , MF6AC3 , MF6AC4 , MF6AN3 , MF6AN4
Blanks	ICP_AES
ND16	The following samples have analyte results greater than or equal to MDLs. The associated CCB analyte results are less than or equal to -MDLs but greater than or equal to -CRQLs. Use professional judgment to qualify detected and nondetected analytes.
	LCS , MF6AF4 , MF6AF4L , MF6AF4D , MF6AF6 , MF6AF7 , MF6AG2 , MF6AG3 , MF6AG4 , MF6AG5 , MF6AG6 , MF6AG7 , MF6AC2 , MF6AC3 , MF6AC4 , MF6AN3 , MF6AN4
	Sodium LCS , MF6AF4 , MF6AF4L , MF6AF4D , MF6AF6 , MF6AF7 , MF6AG2 , MF6AG3 , MF6AG4 , MF6AG5 , MF6AG6 , MF6AG7 , MF6AC2 , MF6AC3 , MF6AC4 , MF6AN3 , MF6AN4
	Barium LCS
	Potassium LCS , MF6AF4 , MF6AF4L , MF6AF4D , MF6AF6 , MF6AF7 , MF6AG2 , MF6AG3 , MF6AG4 , MF6AG5 , MF6AG6 , MF6AG7 , MF6AC2 , MF6AC3 , MF6AC4 , MF6AN3 , MF6AN4
Blanks	ICP_AES
NE05	The following samples have analyte results greater than CRQLs. The associated preparation blank analyte results are greater than or equal to MDLs but less than or equal to CRQLs. Use professional judgment to qualify detected and nondetected analytes.
	LCS , MF6AF4 , MF6AF4L , MF6AF4D , MF6AF4S , MF6AF6 , MF6AF7 , MF6AG2 , MF6AG3 , MF6AG4 , MF6AG5 , MF6AG6 , MF6AG7 , MF6AC2 , MF6AC3 , MF6AC4 , MF6AN3 , MF6AN4

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Blanks

Blanks	ICP_AES
	Barium LCS , MF6AF4 , MF6AF4L , MF6AF4D , MF6AF4S , MF6AF6 , MF6AF7 , MF6AG2 , MF6AG3 , MF6AG4 , MF6AG5 , MF6AG6 , MF6AG7 , MF6AC2 , MF6AC3 , MF6AC4 , MF6AN3 , MF6AN4
	Aluminum LCS , MF6AF4 , MF6AF4L , MF6AF4D , MF6AF6 , MF6AF7 , MF6AG2 , MF6AG3 , MF6AG4 , MF6AG5 , MF6AG6 , MF6AG7 , MF6AC2 , MF6AC3 , MF6AC4 , MF6AN3 , MF6AN4
	Potassium LCS

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## Detection Limit

Detection Limit	Hg
NDL1	The following samples have results greater than or equal to MDLs but less than CRQLs. Detected analytes are qualified J. MF6AG9, MF6AF4, MF6AF4D, MF6AF6, MF6AF7, MF6AG6, MF6AC3, MF6AC4
	Mercury MF6AG9 , MF6AF4 , MF6AF4D , MF6AF6 , MF6AF7 , MF6AG6 , MF6AC3 , MF6AC4

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***Data Review Reports*****Detection Limit**

<b>Detection Limit</b>	<b>ICP_AES</b>
NDL1	The following samples have results greater than or equal to MDLs but less than CRQLs. Detected analytes are qualified.
	MF6AF4L, MF6AF4D, MF6AG2, MF6AG3, MF6AC2, MF6AN3, MF6AN4, MF6AF4, MF6AF6, MF6AF7, MF6AG4, MF6AG5, MF6AG6, MF6AG7, MF6AG9, PB6510BL, PBW01, MF6AC3, MF6AC4
Sodium	MF6AF4L, MF6AF4D, MF6AG2, MF6AG3, MF6AC2, MF6AN3, MF6AN4
Selenium	MF6AF4, MF6AF4L, MF6AF4D, MF6AF6, MF6AF7, MF6AG2, MF6AG3, MF6AG4, MF6AG5, MF6AG6, MF6AG7, MF6AC2, MF6AN3, MF6AN4
Arsenic	MF6AG9
Cobalt	MF6AF4L, MF6AF4D, MF6AG3, MF6AG7, MF6AN3, MF6AN4
Barium	PB6510BL
Beryllium	MF6AG9, MF6AF4L, MF6AG4, MF6AG7
Aluminum	PBW01, MF6AG9, PB6510BL
Antimony	MF6AF4, MF6AF4D, MF6AF6, MF6AF7, MF6AG6, MF6AC2, MF6AC3, MF6AC4, MF6AN4
Potassium	PBW01, MF6AF4L
Thallium	MF6AG3, MF6AG4, MF6AG5, MF6AG7
Cadmium	MF6AF4, MF6AF4D, MF6AF6, MF6AF7, MF6AG6
Silver	MF6AG6, MF6AC2, MF6AC3, MF6AC4

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***Data Review Reports*****Duplicates**

Duplicates	ICP_AES
NI03	The following Duplicate and original sample results are greater than 5xCRQL and RPD is greater than 20. The original sample results are greater than or equal to MDLs. Detected analytes are qualified J. Nondetected analytes are qualified U. MF6AF4, MF6AF6, MF6AF7, MF6AG2, MF6AG3, MF6AG4, MF6AG5, MF6AG6, MF6AG7, MF6AC2, MF6AC3, MF6AC4, MF6AN3, MF6AN4
	Arsenic MF6AF4D
	Barium MF6AF4D
	Nickel MF6AF4D
	Magnesium MF6AF4D
	Manganese MF6AF4D

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**Data Review Reports****Matrix Spikes**

<b>Matrix Spikes</b>	<b>ICP_AES</b>
NG10	The following Matrix Spike samples have percent recoveries in the range of 30-74% and post-digestion spike samples have percent recoveries less than 75%. Detected analytes with results greater than or equal to MDLs are qualified J-. Nondetected analytes are qualified UJ. MF6AF4, MF6AF6, MF6AF7, MF6AG2, MF6AG3, MF6AG4, MF6AG5, MF6AG6, MF6AG7, MF6AC2, MF6AC3, MF6AC4, MF6AN3, MF6AN4 Antimony MF6AF4S
Matrix Spikes	<b>ICP_AES</b>
NG13	The following Matrix Spike samples have percent recoveries greater than 125% and post-digestion spike samples have percent recoveries greater than 125%. Detected analytes with results greater than or equal to MDLs are qualified J+. Nondetected analytes are not qualified. MF6AF4, MF6AF6, MF6AF7, MF6AG2, MF6AG3, MF6AG4, MF6AG5, MF6AG6, MF6AG7, MF6AC2, MF6AC3, MF6AC4, MF6AN3, MF6AN4 Cadmium MF6AF4S
Matrix Spikes	<b>ICP_AES</b>
NG14	The following Matrix Spike samples have percent recoveries greater than 125% and post-digestion spike samples have percent recoveries less than or equal to 125%. Detected analytes with results greater than or equal to MDLs are qualified J-. Nondetected analytes are not qualified. MF6AF4, MF6AF6, MF6AF7, MF6AG2, MF6AG3, MF6AG4, MF6AG5, MF6AG6, MF6AG7, MF6AC2, MF6AC3, MF6AC4, MF6AN3, MF6AN4 Cobalt MF6AF4S Nickel MF6AF4S

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## Serial Dilution

Serial Dilution	ICP_AES
NL031	The following ICP-AES Serial Dilution (SD) samples have percent difference (%D) greater than 10% and initial sample results are greater than 50xMDLs. The detected analytes in samples with results greater than or equal to MDLs are qualified J. Nondetected analytes in samples are qualified U. MF6AF4, MF6AF6, MF6AF7, MF6AG2, MF6AG3, MF6AG4, MF6AG5, MF6AG6, MF6AG7, MF6AC2, MF6AC3, MF6AC4, MF6AN3, MF6AN4
	Vanadium MF6AF4L
	Calcium MF6AF4L
	Zinc MF6AF4L
	Copper MF6AF4L
	Magnesium MF6AF4L
	Manganese MF6AF4L
	Iron MF6AF4L